

# On-Line Visualization

Quiet Heliosphere

# Heliophysics Laboratory Primer

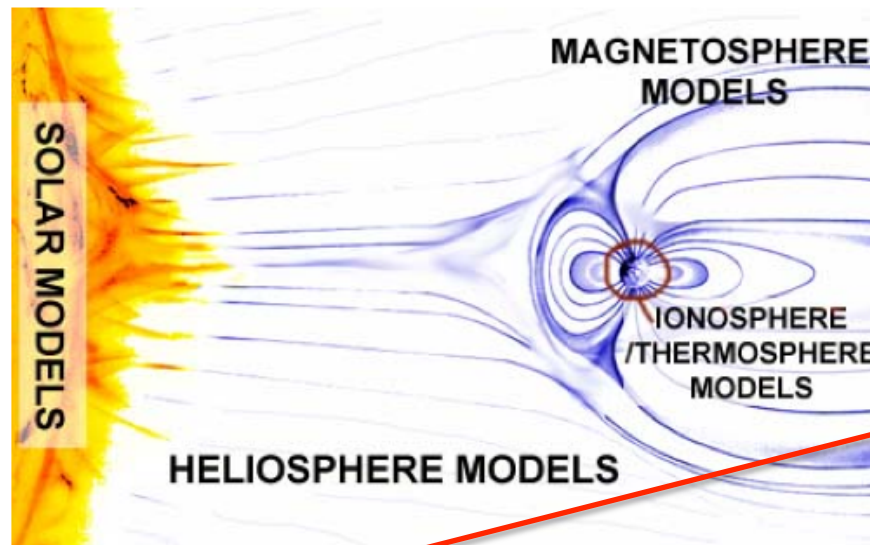
## Quiet Heliosphere

### Heliophysics Laboratory Primer

This primer has been created to help you to:

1. use the CCMC tools designed to interrogate Heliophysics models at CCMC, and
2. obtain a top level view of the connectivity and naming of regions and parameters that comprize the heliophysics system.

The highest level picture of the Heliophysics system shows three components - the Sun, the solar wind, and the magnetosphere while buried inside the magnetosphere is the ionosphere and thermosphere. Click for the specific primer:



[Click here](#)

- [Heliosphere](#)
- [Magnetosphere](#)
- [Ionosphere/Thermosphere](#)

# On-line Visualization Background Solar Wind

[Click here](#)

## Heliosphere

### Background heliosphere

Event Date	Run Number	Key Words	Model Type	Model	Model Version	Carrington Rotation Start	Carrington Rotation End	Start Date	End Date
Modeled Run	<a href="#">HSS2011_ENLIL_051311_SH_1</a>	HS2011, ENLIL background SW, Solar Max	Heliosphere	ENLIL	2.7	1988	1988	2002/03/30	2002/04/26

# On-Line Visualization Background Solar Wind (3D Data)

**Aleksandre\_Taktakishvili\_051311\_SH\_2**

[Click here](#)

Title/Introduction: Background solar wind solution for the CR2095 when the April 3, 2010 CME occurred

Key Word: Heliospheric summer school 2011

Model Type: Heliosphere

Model: ENLIL

Run Objective: stationary\_Solar\_Wind

Initial State: analytic\_prescription

Boundary Condition Type: Time Independent

Inner Boundary Condition: from\_WSA\_model input

Outer Boundary: Mars

Simulation Grid: 256x30x90

Carrington Rotation: 2095

- View [3D Data](#)
- View [control file](#) with input parameters for the run.
- View [quick look graphics for the run](#)

Note: Quick look graphics has been designed by the model developer to enable quick evaluation of the results of the run. To find more information regarding this option please contact the CCMC staff.

[ENLIL\\_at\\_Earth](#)

[ENLIL\\_at\\_Mars](#)

[ENLIL\\_at\\_Mercury](#)

[ENLIL\\_at\\_Messenger](#)

[ENLIL\\_at\\_Stereo\\_A](#)

[ENLIL\\_at\\_Stereo\\_B](#)

[ENLIL\\_at\\_Venus](#)

Click here

# Generate a Plot with Default Selection

Update Plot

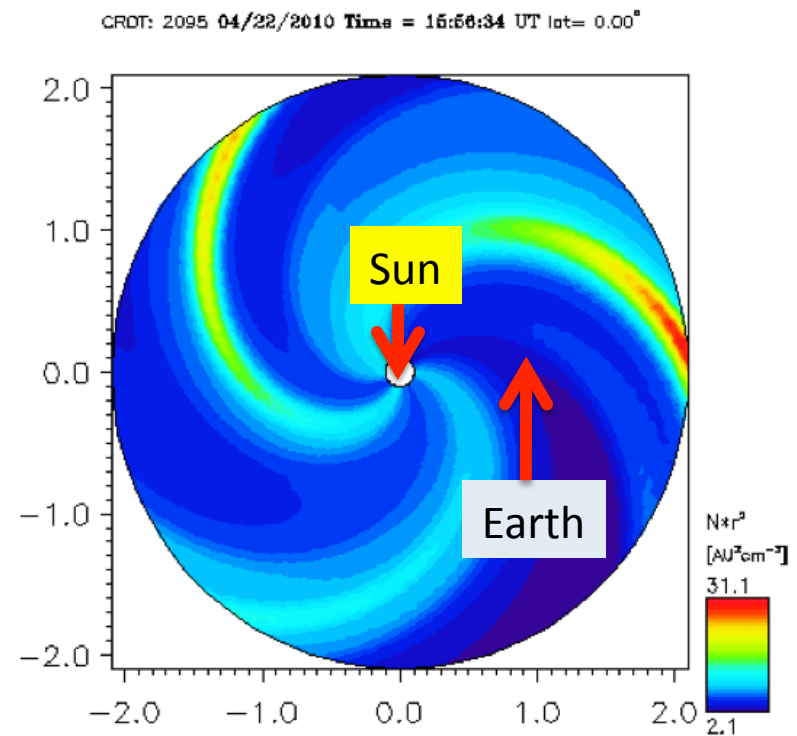
*Update Plot* will update (generate) the plot with the chosen time and plot parameters below.  
**This will take some time (typically 10-30s) as data is read in and processed.**

⊙ **Choose data time:**

Date: 2010/04/22 Time: 15:56:34

Please wait - computation is estimated to take 0 minutes and 5 seconds.

Color Contour 2D plot in solar equatorial plane (Lat=0) of  $Nr^2$  (number density  $N$  scaled with  $r^2$ ,  $r$  – radial distance in au)



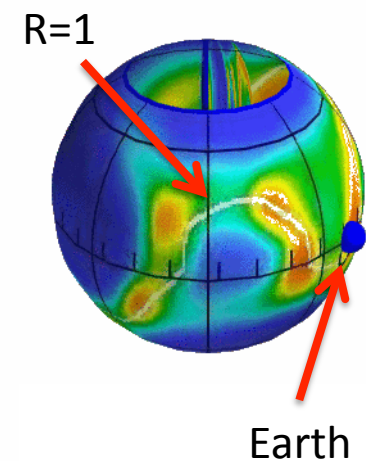
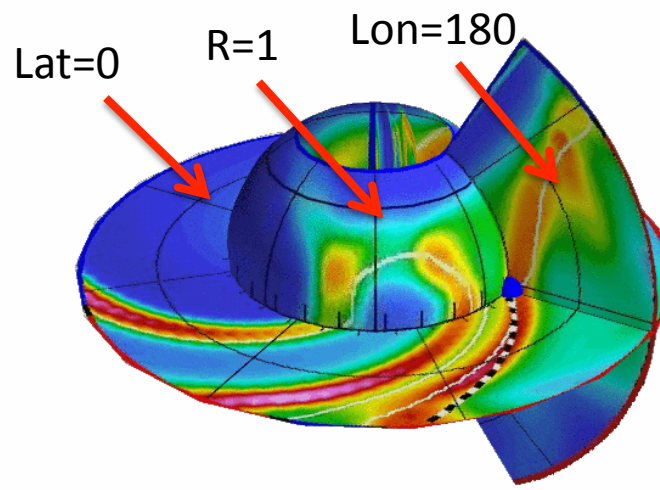
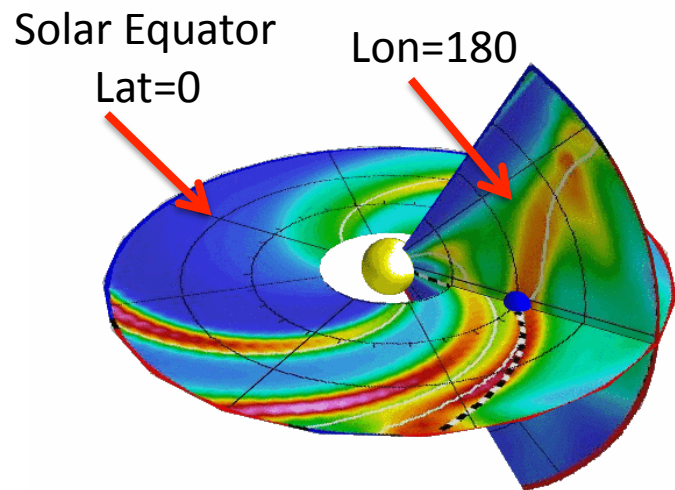
Model at CCMC: ENLIL

# Enlil: Plot Areas

$R_1$    $R_2$   Range: 0.103908 ... 2.09612 AU  
 $\text{Lon}_1$    $\text{Lon}_2$   Range: 0 ... 360 deg.  
 $\text{Lat}_1$    $\text{Lat}_2$   Range: -58.0001 ... 58.0001 deg.

## Choose Cut Plane:

$R=\text{constant}$  ☐   
 $\text{Lon}=\text{constant}$  ☐   
 $\text{Lat}=\text{constant}$  ☒



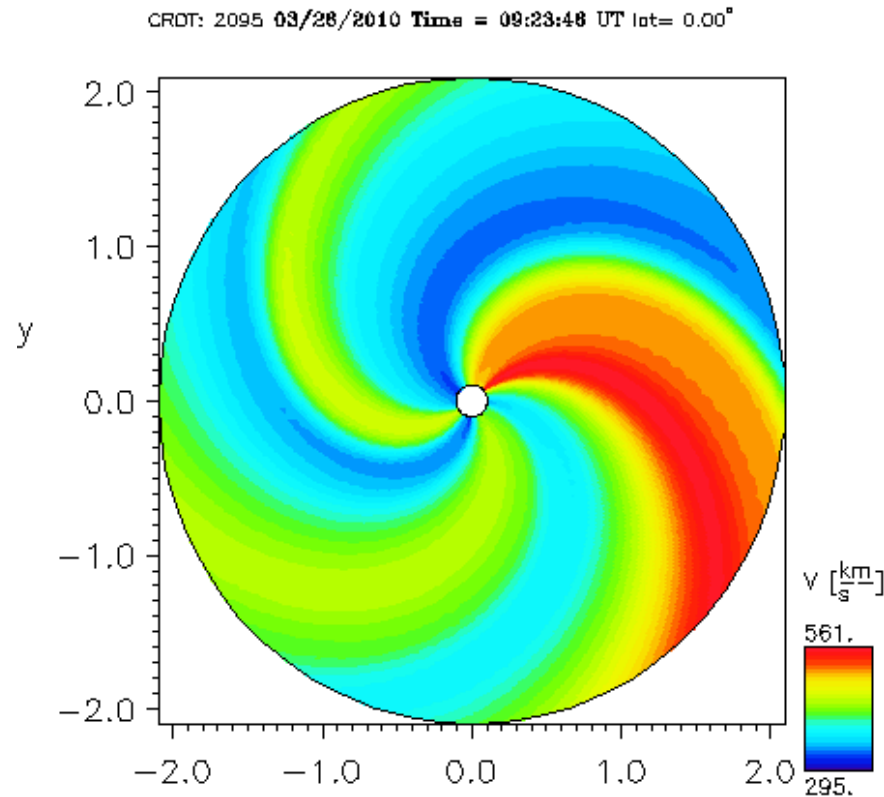
# Example: Solar Wind Velocity in Lat=0 Plane

Select Time Step: e.g., Date: 2010/03/26 Time: 09:23:46

Choose Plot Mode: ColorContour (2D)

Choose Physical Variable (Q1 menu): **V** (solar wind velocity magnitude)

Click "Update Plot"





# Solar Wind Parameters at Earth (L1)

**Aleksandre\_Taktakishvili\_051311\_SH\_2**

[Click here](#)

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Key Word: Heliospheric summer school 2011

Model Type: Heliosphere

Model: ENLIL

Run Objective: stationary\_Solar\_Wind

Initial State: analytic\_prescription

Boundary Condition Type: Time-Independent

Inner Boundary Condition: from\_WSA\_model input

Outer Boundary: Mars

Simulation Grid: 256x30x90

Carrington Rotation: 2095

- View [3D Data](#)
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[ENLIL\\_at\\_Earth](#)

[ENLIL\\_at\\_Mars](#)

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[ENLIL\\_at\\_Messenger](#)

[ENLIL\\_at\\_Stereo\\_A](#)

[ENLIL\\_at\\_Stereo\\_B](#)

[ENLIL\\_at\\_Venus](#)



# Time Series at L1: Solar Wind Density (N), Velocity (V), Magnetic Field (B)

File: ENLIL\_at\_Earth.txt

Run: Aleksandre\_Taktakishvili\_051311\_SH\_2 Model: ENLIL

This is the web interface for the visualization of results of one-dimensional model output.

Please review the default selections and make your changes.

To start the graphics program click the **Plot** button. The resulting image will be displayed at this location of the page.

Should the result be a black image, the graphics program encountered a programming error. Please report the set of input parameters used.

**Plot input parameters** (only used for visualization):

☒ Time<sub>1</sub>: 0.00301074 days to Time<sub>2</sub>: 33.0035 days

Range: 0.00301 days (2010/03/26 00:00) to 33.00350 days (2010/04/28 09:05:02.400)

☐ Start: Year: 2010 Month: 3 Day: 1 Hour: 9 Minute: 0

to End: Year: 2010 Month: 4 Day: 1 Hour: 9 Minute: 0

Choose up to three different quantities to be plotted:

Q 1: N Q 2: V Q 3: B

☐ Log scale (apply to all quantities > 0 in plot)

☐ Lock plot data range: Min.: 0 Max.: 1

Image magnification: 1

Line style: no line Plot symbols: diamonds Symbol size: 10

Reset Form

Reset Form will reset changes to the defaults specified by the previous run of this script.

Update Plot

Update Plot will update (generate) the plot with the chosen time and plot parameters above or will print the entire file to screen.

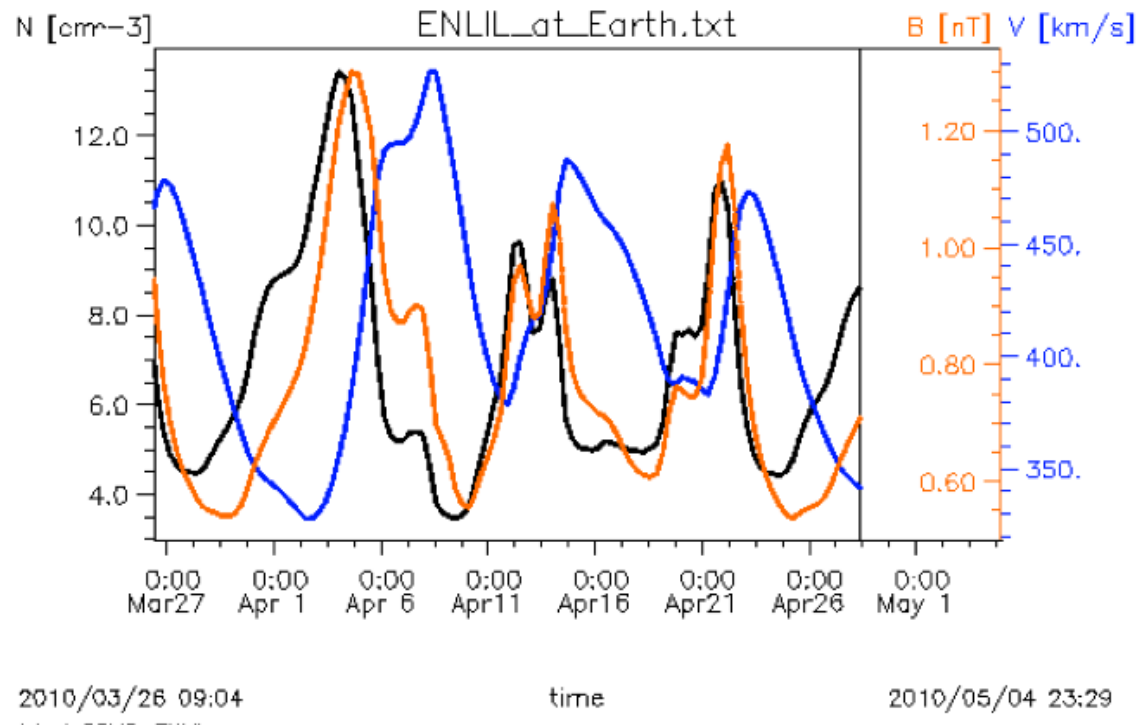
☒ Have data printed to text file.

Check box to save time series in ASCII file

Choose up to three variables in Q1, Q2, Q3 pull-down menus  
Example: N, V, B

Click "Update Plot"

# Time Series at L1 (results)



Scroll down to the bottom of the page

[ASCII data output \(1055.05 KB\)](#)

Click here to download ASCII files